

REMARKS

Claims 1-19 are all the claims pending in the application. Claims 1-6, 18 and 19 are withdrawn from consideration. Claims 7-15 are rejected. Claims 12 and 16 are objected to because of certain inconsistencies with U.S. practice. Claims 7, 8, 12-14, 16 and 17 are amended. New claims 20-23 are added. Claims 1-6, 10, 11, 18 and 19 are cancelled. Thus, claims 7-9, 12-17 and 20-23 remain pending in the application.

Election/Restriction

The Examiner has maintained the original requirement for restriction and has made the requirement FINAL. Applicants have cancelled non-elected claims 1-6, 18 and 19, thereby rendering the requirement moot. Applicants reserve the right to file a divisional application in accordance with the provisions of 35 U.S.C. § 121.

Specification

The Examiner objects to the specification because of a spelling error at page 2. An appropriate change has been made.

Claim Objections

Claims 12 is objected to because of a phrase that appears at lines 1-2. The Examiner suggests deletion, and this suggestion has been implemented.

Claim 16 is also objected to because it is an improper multiple dependent claim. The multiple dependency has been removed.

Claim Rejections - 35 U.S.C. § 102

Claims 7 and 10 are rejected under 35 U.S.C. § 102(b) as being anticipated by JP 48-006925 (JP '925). This rejection is traversed for at least the following reasons.

As to claim 10, the rejection is moot in view of the cancellation of the claim.

With respect to claim 7, the rejection is overcome because claim 7 has been amended to add limitations that are not found in JP '925.

Claim 17, which is not cited in the summary of the rejection but is mentioned in the text, has been amended to depend from claim 12 alone.

JP '925

JP48-006925 discloses a method of manufacturing a glass article comprising the steps of: (1) processing a glass surface previously ground by a grinding process, within a hydrofluoric acid bath or a corrosive bath having the same effect as the former, to remove a surface layer with a plenty of defects; and (2) polishing the surface layer to carry out polished finish and to strengthen the glass article.

In the disclosed process, the corrosive bath may be an etching solution. As illustrated in Fig. 3 of JP '925, a plurality of defects 2 on the glass surface G are subjected to corrosive processing, resulting in a corroded surface E' that has corroded holes 3. As a result, the defects on the glass surface G are removed by the corrosive bath but corroded holes remain. Accordingly, the surface E is polished to remove the corroded holes 3, using a polishing process that results in a surface P'. As illustrated in Fig. 3, the surface P' is free from both defects 2 and corroded holes 3, and is excellent in mechanical strength and optical characteristics (column 2, lines 23 to 31).

In the foregoing process, the corrosive solution serves to etch the glass surface G to form the corroded surface E' deeper than the defects 2 and to form the corroded holes 3. As a practical matter, the glass surface G' is etched to a depth of 10 to 50 μm (column 3, lines 22 to 25). In any event, the corrosive solution is not used to elicit defects and to facilitate a defect inspection step.

In other words, there is no teaching at all in JP '925 about magnifying the defects on the glass surface by an etching process, specifically, magnifying a defect or a crack on a glass surface by etching and by thereafter precisely polishing an etched glass surface. The disclosed and claimed method is effective to lessen a burden imposed on the precision polishing step and to easily detect magnified defects or cracks in the defect inspection step. By contrast, rather than magnify, the defects are eliminated in JP '925.

Clearly, JP '925 does not teach a process with a step of eliciting a defect, where the step comprises magnifying the defect. Thus, the claims cannot be anticipated.

Claim Rejection - 35 U.S.C. § 103

Claims 8 and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 48-006925 (JP '925) in view of Fujimura et al (2002/0000098). This rejection is traversed for at

least the following reasons.

Claims 8 and 9, which depend from claim 7, would be patentable over JP '925 for the reasons already given. Fujimura et al does not remedy the identified deficiencies in the teachings of JP '925.

Fujimura et al

Fujimura et al discloses a method of producing a glass substrate for a magnetic recording medium. In addition, a final cleaning step is performed in two stages. The method is effective to inhibit any growth of needle-like projections containing an alkali metal carbonate on the surface of the glass substrate. However, no teaching is made at all in Fujimura et al about magnifying defects on a glass surface by etching.

Claim 11 is rejected under 35 U.S.C. § 103(a) as being unpatentable over JP48-006925 (JP '925) in view of Fujimura et al (2002/0000098) and further in view of the Admitted Prior Art (APA). This rejection is moot in view of the cancellation of the claim.

Claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over JP48-006925 (JP '925) in view of the Admitted Prior Art (APA). This rejection is traversed for at least the following reasons.

Claim 12 has been amended to emphasize that in the claimed method, (1) etching is conducted prior to a precision polishing step, (2) a crack which extends from the surface of the glass substrate in the direction of the depth and which might remain on the surface of the glass substrate even after the precision polishing step is elicited; and (3) a defect inspection is carried out after the precision polishing step, based on the fact that the crack is magnified by the etching step to the extent that the crack can be detected by the defect inspection step.

This feature is not found in JP '925 or the APA. In the former case, Applicants clearly have demonstrated that neither JP '925 nor Fujimura et al teach the magnification and inspection features. In the case of the APA, the present application clearly teaches that there is a problem in conventional processing with defects that remain after polishing. Only the inventors teach that the etching for magnification, and inspection steps would solve that problem.

Claim 13-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 48-006925 (JP '925) in view of Fujimura et al (2002/0000098) and further in view of the Admitted Prior Art (APA). This rejection is traversed for at least the following reasons.

These claims would be patentable for reasons given with respect to parent claim 12. Fujimura et al does not remedy the deficiencies of JP '925 or the APA, as already demonstrated.

Conclusion

The methods according to amended independent claims 7 and 12 are defined by the expressly stated feature of magnifying a defect or a crack on a glass surface by etching and by thereafter precisely polishing an etched glass surface. The method is effective to lessen a burden imposed on the precision polishing step and to easily detect magnified defects or cracks in the defect inspection step. Under the circumstances, Applicants respectfully submit that the methods defined by amended claims 7 and 12 are not anticipated by, nor obvious from JP '925 and Fujimura et al, taken alone or together, even in consideration of the APA, and are therefore patentable over the prior art. Accordingly, the remaining claims dependent are also patentable over them because they depend from the allowable independent claims 7 and 12.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Amendment Under 37 C.F.R. § 1.111
U.S. Application No. 10/619,181

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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